INDEX TO VOLUME XIX

APRIL TO SEPTEMBER, 1900.

The titles first appearing under each classification-head are those of leading articles in the Magazine. The titles in smaller type, which follow, indicate articles from other journals which have been editorially noticed in the "Review of the Engineering Press."

CIVIL ENGINEERING.

		PAGE.
THE CAPE-TO-CAIRO RAILWAY . . . With 25 Illustrations.	*John Hartley Knight*	1
A COMPARISON OF THE ISTHMIAN CANAL PROJECTS	*George A. Bush*	19
RAILWAY OPPORTUNITIES IN THE ORIENT . With 8 Illustrations.	*Wm. Barclay Parsons*	177
RUSSIA'S FIELD FOR ANGLO-SAXON ENTERPRISE IN ASIA . . . . . With 12 Illustrations.	*Alexander Hume Ford*	354
ENGINEERING DEVELOPMENT OF THE FAR EAST . . . . . With 11 Illustrations.	*Wm. Barclay Parsons*	481
INDUSTRIAL DEVELOPMENT OF PORTO RICO With 15 Illustrations.	*Albert W. Buel*	683
THE CRISIS IN CHINA. ITS MEANING FOR AN ENGINEERING CONSTITUENCY . .	*Hon. John Barrett*	801
COMMERCIAL REQUIREMENTS OF WATER POWER GOVERNING	*Elmer F. Cassel*	841

REVIEWS.

Asphalt, Action of Water on..... 279
Austin Dam, Failure of the..... 441
Bridge, A Steel-Pipe..... 913
Charlottenburg Testing Laboratory.... 271
Concrete Steel in Dry-Dock Building.. 765
Disposal of Town Refuse..... 591
Economy of Rapid Building..... 921
Elbe-Trave Canal..... 914
Electrical Operation of Lock Gates.... 118
Engineer, Functions of the..... 114
Filters, Performance of Slow Sand.... 281
Flow of Water in Rivers..... 277
Hammer Blow in Water Pipes..... 269
Hennebique Iron-Concrete System of Construction 435
India, Railway Communication with... 109
Lake Nicaragua, Level of..... 437
Lock Gates, Electrical Operation of.... 118
Madagascar, Development of..... 273
Masonry Construction, Modern..... 127
Niagara River, Discharge of..... 129
Nicaragua Route, Topography of..... 917

Prevention of Water Waste..... 905
Public Health, Smoke Prevention and.. 426
Railways of Africa..... 117
Rainfall and Sewers..... 596
Rapid Building, Economy of..... 921
Refuse, Disposal of Town..... 591
Rivers, Flow of Water in..... 277
Sand Filters, Performance of Slow.... 281
Sewage Disposal Legislation..... 443
Sewer Ventilation..... 284
Sewers, Rainfall and 596
Siberia, Mining Opportunities in..... 761
Smoke Prevention and Public Health.. 426
Steel-Pipe Bridge..... 913
Testing Laboratory, Charlottenburg... 271
Topography of the Nicaragua Route... 917
Trans-Siberian Railway..... 432
Ventilation, Sewer..... 284
Water, Action of, on Asphalt..... 279
Water-Distilling Plant..... 280
Water Pipes, Hammer Blow in..... 269
Water Waste, Prevention of..... 905

INDEX to leading articles on Civil Engineering in the Engineering Press, including Bridges, Canals, Rivers and Harbors, Hydraulics, Irrigation, Sewerage, Streets and Pavements, Water Supply and Miscellany.....134, 288, 449, 608, 770, 929.

See also Index to Architectural Engineering in the Engineering Press, including Construction and Design, Heating and Ventilation, Plumbing and Gasfitting and Miscellany.....133, 287, 447, 607, 709, 927.

ECONOMICS AND INDUSTRY.

		PAGE.
THE CAPE-TO-CAIRO RAILWAY . . . With 25 Illustrations.	*John Hartley Knight*	1
A COMPARISON OF THE ISTHMIAN CANAL PROJECTS	*George A. Bush*	19
ECONOMIC AND LABOUR FACTORS IN THE DISTRIBUTION OF INDUSTRIES . .	*John Richards*	98
LABOUR QUESTIONS IN ENGLAND AND AMERICA	*Charles Buxton Going*	165
MANUFACTURERS' ASSOCIATIONS, LABOUR ORGANISATIONS, AND ARBITRATION .	*H. W. Hoyt*	173
RAILWAY OPPORTUNITIES IN THE ORIENT . With 8 Illustrations.	*Wm. Barclay Parsons*	177
WORKS MANAGEMENT FOR MAXIMUM PRODUCTION	*J. Slater Lewis*	211
THE FOLLIES OF SOME AMERICAN EXPORT TRADERS	*An Export Salesman*	348
COMMERCIAL ORGANISATION OF THE MACHINE SHOP	*Hugo Diemer*	
I. Classification of Shop Orders .		342
II. The Production Department—Bills of Material . . .		511
III. The Production Department—Store-Room Management .		705
IV. The Production Department—Execution of the Work . .		892
RUSSIA'S FIELD FOR ANGLO-SAXON ENTERPRISE IN ASIA . . . . . With 12 Illustrations.	*Alexander Hume Ford*	354
NEW SHOP METHODS A COROLLARY OF MODERN MACHINERY	*An Editorial Comment*	369

PIECE-WORK NOT NECESSARY FOR BEST RESULTS IN THE MACHINE SHOP	*James O'Connell*	373
THE PARIS EXPOSITION AS A MECHANICAL ACHIEVEMENT With 9 Illustrations.	*Edmund Mitchell*	399
ENGINEERING DEVELOPMENT OF THE FAR EAST With 11 Illustrations.	*Wm. Barclay Parsons*	481
THE SHIP-BUILDING YARDS OF THE UNITED STATES With 57 Illustrations.	*Waldon Fawcett*	493, 661
THE SETTLEMENT OF THE MACHINISTS' STRIKE	*An Editorial Comment*	518
HISTORY AND PROGRESS OF MINING IN BRITISH COLUMBIA With 31 Illustrations.	*H. Mortimer Lamb*	543
THE IRON SITUATION FROM A BRITISH POINT OF VIEW	*J. Stephen Jeans*	577
INDUSTRIAL DEPRESSIONS AND THE PIG-IRON RESERVE	*George H. Hull*	641
CHINA IN REGENERATION—AN EPOCH AND AN OPPORTUNITY	*John Foord*	655
INDUSTRIAL DEVELOPMENT OF PORTO RICO With 15 Illustrations.	*Albert W. Buel*	683
THE CRISIS IN CHINA. ITS MEANING FOR AN ENGINEERING CONSTITUENCY	*Hon. John Barrett*	801

REVIEWS.

Administration, Workshop..... 421
Africa, The Railways of..... 117
American Competition..... 422
American Competition in Germany.... 909
Asphalt, Action of Water on..... 279
Austin Dam, Failure of the..... 441
Automobile Trolley..... 272
Chimney Draught, Usefulness of..... 263
Combination and Competition..... 901
Communication with the East..... 919
Competition, American..... 422
Development of Germany..... 424
Disposal of Town Refuse..... 591
Drafting Room, An American..... 129
Electric Driving for Factory Machinery 599
Engineer, Functions of the..... 114
Examinations of Patents..... 746
Factory Machinery, Electric Driving for 599
Filters, Performance of Slow Sand.... 281
Flow of Water in Rivers..... 277
Gas as Fuel..... 113
Germany, American Competition in... 909
Germany, Development of..... 424
German Machinery at Paris Fair..... 594
German Iron Markets..... 920
Hammer Blow in Water Pipes..... 269
Hand Labour and Machine Work..... 270
Hennebique Iron-Concrete System of Construction 435
India, Railway Communication with... 109
Iron Markets, German..... 920
Lake Nicaragua, Level of..... 437
Machine Work, Hand Labour and..... 270
Madagascar, Development of..... 273
Masonry Construction, Modern..... 127
Niagara River, Discharge of..... 129
Paris Fair, Some German Machinery at 594
Patents, Examinations for..... 746
Public Health, Smoke Prevention and. 426
Railways of Africa..... 117
Rainfall and Sewers..... 596
Refuse, Disposal of Town..... 591
Rivers, Flow of Water in..... 277
Sand Filters, Performance of Slow.... 281
Sewage Disposal Legislation..... 443
Sewer Ventilation..... 284
Sewers, Rainfall and..... 596
Siberia, Mining Opportunities in..... 761
Smoke Prevention and Public Health.. 426
Trans-Siberian Railway..... 432
Ventilation, Sewer..... 284
Water, Action of, on Asphalt..... 279
Water Pipes, Hammer Blow in..... 269
Workshop Administration..... 421

INDEX to leading articles on Economics and Industry and Industrial Sociology in the Engineering Press, and Current Reviews, including Commerce and Trade, Currency and Finance, Governmental Control, Labour, etc., will be found under Miscellany in the various departments.

ELECTRICAL ENGINEERING.

		PAGE.
GAS ENGINES AND ELECTRIC STATIONS .	*Alton D. Adams*	28
ELECTRICAL APPARATUS IN MILITARY OPERATIONS . . . . . With 26 Illustrations.	*John P. Wisser*	232
ELECTRICAL EQUIPMENT OF THE TALL OFFICE BUILDING . . . . . With 5 Illustrations.	*Reginald Pelham Bolton*	381
ELECTRICAL MEASUREMENTS OF WORK OR ENERGY	*G. L. Addenbrooke*	567
APPLICATIONS OF ELECTRICITY IN THE BRITISH COLLERIES . . . . With 17 Illustrations.	*Sydney F. Walker*	712
ELECTRIC MINING MACHINERY IN THE BRITISH COLLIERIES . . . . With 16 Illustrations.	*Sydney F. Walker*	847

REVIEWS.

Annealing by Electricity..... 128
Automobile Trolley..... 272
Automobiles, Power Consumption of.. 278
Bremer Arc Lamp..... 912
Central-Station Economics..... 759
Central Station Statistics, German..... 915
Coherer, Physics of the..... 430
Electric Driving for Factory Machinery 599
Electric Locomotion on European Railways 595
Electric Power Distribution in Great Britain 906
Electric Touch..... 262
Electric Traction on the London Metropolitan 747
Electric Traction, Practical Notes on.. 743
Electric Traction under Steam Conditions 125
Electric Train Lighting..... 922
Electrical Equipment of War Ships.... 425
Electrical Standards, Verification of... 282
Electricity, Development of..... 749
Electrochemistry in 1899, Progress of.. 119
Electro-Graving Process, New..... 433
European Railways, Electric Locomotives on..... 595
Factory Machinery, Electric Driving for 599
Great Britain, Electric Power Distribution in..... 906
Lamp, Bremer Arc..... 912
Lock Gates, Electrical Operation of.... 118
London Metropolitan, Electric Traction on 747
Machine Tools, Power Required by... 266
Machine Tools, Power Used in..... 429
Magneto-Telephonograph, Poulsen.... 757
Physics of the Coherer..... 430
Poulsen Magneto-Telephonograph..... 757
Power Required by Machine Tools.... 266
Power Station Design..... 902
Power Transmission, Distant Electric. 586
Power Used in Machine Tools..... 429
Space Telegraphy, Progress in..... 111
Standardisation of Electrical Plant.... 110
Standards, Verification of Electrical... 282
Touch, Electric..... 262
Traction, Practical Notes on..... 743
Train Lighting, Electric..... 922
Transmission, Distant Electric Power.. 586
War Ships, Electrical Equipment of... 425

INDEX to leading articles on Electrical Engineering in the Engineering Press, including Electro-Chemistry and Metallurgy, Lighting, Power, Telegraphy and Telephony, and Miscellany..... 139, 295, 454, 615, 775, 934.

MARINE AND NAVAL ENGINEERING.

		PAGE.
LIMITS TO THE USE OF FORCED DRAFT FOR MARINE BOILERS	*Walter M. McFarland*	73
THE INCREASING DEMAND FOR LIGHT-DRAUGHT STEAMERS . . . With 22 Illustrations.	*Waldon Fawcett*	186
THE DEMONSTRATED SUCCESS OF THE SUBMARINE BOAT . . . . With 15 Illustrations.	*Philip Hichborn*	321
THE SHIP-BUILDING YARDS OF THE UNITED STATES . . . . . With 51 Illustrations.	*Waldon Fawcett*	493, 661

REVIEWS.

Belleisle Experiment..... 745
Boilers of Naval Vessels..... 264
Breakage of Propeller Shafts..... 427
Commerce Destroyers..... 431
Concrete Steel in Dry-Dock Building.. 765
Electrical Equipment of War Ships.... 425
Lock Gates, Electrical Operation of.... 118
Naval Engineer, Status of the..... 585
Naval Vessels, Boilers of..... 264
Plateway System..... 261
Propeller Shafts, Breakage of..... 427
Shaft, Novel Way of Installing a..... 766
Submarine Boats..... 423
War Ships, Electrical Equipment of... 425
Water-Distilling Plant..... 280

INDEX to leading articles on Marine and Naval Engineering in the Engineering Press and Current Reviews, including Boilers and Engines, Naval Affairs, and Miscellany..... 144, 302, 461, 621, 782, 942.

MECHANICAL ENGINEERING.

		PAGE.
GAS ENGINES AND ELECTRIC STATIONS .	*Alton D. Adams*	28
LIMITS TO THE USE OF FORCED DRAFT FOR MARINE BOILERS	*Walter M. McFarland*	73
THE GEOMETRICAL GENERATION OF IRREGULAR SURFACES IN MACHINE CONSTRUCTION . . . . . With 12 Illustrations.	*Henry Roland*	83
WORKS MANAGEMENT FOR MAXIMUM PRODUCTION	*J. Slater Lewis*	211
THE EFFECTIVE LUBRICATION OF JOURNALS With 5 Illustrations.	*F. W. Graham Snook*	221
COMMERCIAL ORGANISATION OF THE MACHINE SHOP	*Hugo Diemer*	
I. Classification of Shop Orders .		342
II. The Production Department—Bills of Material . . .		511
III. The Production Department—Store-Room Management .		705
IV. The Production Department—Execution of the Work . .		892

THE PARIS EXPOSITION AS A MECHANICAL ACHIEVEMENT . . . . . *Edmund Mitchell* 399
With 9 Illustrations.

THE FUTURE OF POWER DEVELOPMENT . *William D. Ennis* 728

HEAVY MOTOR VEHICLES FOR ROAD SERVICE *Fred M. Maynard* 733

THE CONTINUOUS RECORDING OF STEAM-ENGINE PERFORMANCE . . . *W. Ripper* 867
With 5 Illustrations.

REVIEWS.

Acetylene Exposition, Budapest..... 122
Administration, Workshop..... 421
Aerial Propellers..... 115
Aluminothermie 755
Annealing by Electricity..... 128
Automobiles, Power Consumption of.. 278
Automobile Trial, The 1,000-Mile..... 748
Blast Furnace Gases in Gas Engines... 593
Blowing Engines, Gas-Driven..... 587
Boilers of Naval Vessels..... 264
Budapest Acetylene Exposition..... 122
Charlottenburg Testing Laboratory.... 271
Cheap Power..... 904
Chimney Draught, Usefulness of..... 263
Condensation in Steam Engine Cylinders 265
Corliss Engine Practice, American.... 744
Cylinders, Condensation in..... 265
Drafting Room, An American..... 129
Electric Driving for Factory Machinery 599
Electricity, Annealing by..... 128
Engine Practice, American Corliss..... 744
Factory Machinery, Electric Driving for 599
Foundry Management..... 760
Gas as Fuel..... 113
Gas-Driven Blowing Engines..... 587
Gas Engines, Blast Furnace Gases in.. 593
Gas Engines, Large..... 274
German Machinery at Paris Fair..... 594
Hand Labour and Machine Work..... 270
Liquid Air, Technical Applications of.. 124
Lubricants, Properties of..... 908
Machine Tools, Power Required by.... 266
Machine Tools, Power Used in..... 429
Machine Work, Hand Labour and..... 270
Motor Vehicles for Common Roads, Heavy 590
Motor Vehicles, Heavy..... 764
Naval Vessels, Boilers of..... 264
Paris Fair, Some German Machinery at 594
Pneumatic Tools, Portable..... 267
Power, Cheap..... 904
Power Required by Machine Tools.... 266
Power Station Design..... 902
Power Used in Machine Tools..... 429
Specifications for Steel, Proposed Standard 603
Steam Cylinders, Compression in..... 121
Steam Engine, Testing of..... 126
Steam, The Quality of..... 112
Steam Turbine..... 436
Steam Turbine, Tests of Parsons..... 911
Steel, Proposed Standard Specifications for 603
Testing Laboratory, Charlottenburg... 271
Workshop Administration..... 421

INDEX to leading articles on Mechanical Engineering in the Engineering Press, including Boilers, Furnaces and Firing, Compressed Air, Engines and Motors, Gas Engineering, Power and Transmission, Shop and Foundry, and Miscellany.....144, 146, 300, 304, 460, 464, 620, 623, 780, 784, 941, 943.

MINING AND METALLURGY.

PAGE.

THE WORLD'S SUPPLY OF COPPER . . *Frederick H. Hatch* 57

THE IRON ORES OF THE LABRADOR PENINSULA *A. P. Lowe* 205
With 4 Illustrations.

DUTCH GUIANA FROM A MINING STANDPOINT *J. Esdaile Florance* 391
With 8 Illustrations.

UTILISING THE WASTE HEAT FROM THE GAS ENGINE . . . . . *Alton D. Adams* 523

POWER FEATURES OF THE PARIS EXPOSITION *W. H. Donner* 529
With 17 Illustrations.

HISTORY AND PROGRESS OF MINING IN BRITISH COLUMBIA . . . . . *H. Mortimer Lamb* 543
With 31 Illustrations.

APPLICATIONS OF ELECTRICITY IN THE BRITISH COLLIERIES . . . . . *Sydney F. Walker* 712
With 17 Illustrations.

THE FOURTH ERA OF THE LEADVILLE MINING DISTRICT . . . . . *Thomas Tongue* 809
With 13 Illustrations.

ELECTRIC MINING MACHINERY IN THE BRITISH COLLERIES . . . . . *Sydney F. Walker* 847
With 16 Illustrations.

REVIEWS.

Aluminothermie 755
Annealing by Electricity..... 128
Blast-Furnace Charges, Movable Conveyors for..... 753
Blast-Furnace Gases in Gas Engines... 593
Cape Nome..... 601
China, Coal Fields of Shansi..... 602
Chinese Mining Concessions to Foreigners 909
Conveyors for Blast-Furnace Charges, Movable 753
Electricity, Annealing by..... 128
Gas Engines, Blast-Furnace Gases in... 593
Gas as Fuel..... 113
German Iron Markets..... 920
Metallography, Practical Applications of 588
Micro-Metallurgy of Steel..... 751
Minerals of the Philippines..... 604
Nome, Cape..... 601
Philippines, Minerals of the..... 604
Siberia, Mining Opportunities in..... 761
Steel, Micro-Metallurgy of..... 751
Steel, Proposed Standard Specifications for 603

INDEX to leading articles on Mining and Metallurgy in the Engineering Press, including Coal and Coke, Copper, Gold and Silver, Iron and Steel, Mining, and Micellany .....151, 311, 470, 630, 789, 948.

RAILWAY AFFAIRS.

PAGE.

THE CAPE-TO-CAIRO RAILWAY . . . *John Hartley Knight* 1
With 25 Illustrations.

THE JUNGFRAU THREE-PHASE ELECTRIC RAILWAY . . . . . *Ernest Kilburn Scott* 33
With 28 Illustrations.

RAILWAY OPPORTUNITIES IN THE ORIENT *Wm. Barclay Parsons* 177

RUSSIA'S FIELD FOR ANGLO-SAXON ENTERPRISE IN ASIA . . . . . *Alexander Hume Ford* 354
With 12 Illustrations.

LOCOMOTIVE EXHIBITS AT THE PARIS EXPOSITION . . . . . *Charles Rous-Marten* 877
With 11 Illustrations.

REVIEWS.

Africa, The Railways of..... 117
Communication with the East..... 919
Electric Traction under Steam Conditions 125
Electric Train Lighting..... 922
France, Recent Locomotive Practive, in 903
India, Railway Communication with... 109
Langen Monorail..... 440
Madagascar, Development of..... 273
Masonry Construction, Modern..... 127
Monorail, Langen..... 440
Paris, Railway Improvements About.. 597
Plateway System..... 261
Simplon Tunnel, Work on the..... 120
Splugen Tunnel..... 275
Train Lighting, Electric..... 922
Trans-Siberian Railway..... 432

INDEX to leading articles on Railway Affairs in the Engineering Press, including Conducting Transportation, Financial, Legal, Motive Power and Equipment, New Projects, Permanent Way and Fixtures, Traffic, and Miscellany.....156, 315, 474, 636, 796, 955.

STREET AND ELECTRIC TRAMWAYS.

PAGE.

THE JUNGFRAU THREE-PHASE ELECTRIC RAILWAY . . . . . *Ernest Kilburn Scott* 33
With 28 Illustrations.

LOCAL TRANSPORTATION AT THE PARIS EXPOSITION . . . . . *Henry Harrison Suplee* 697
With 9 Illustrations.

REVIEWS.

Central-Station Economics..... 759
Electric Locomotion on European Railways 595
Electric Traction, Practical Notes on.. 743
Electric Traction on the London Metropolitan 747
Electric Traction Under Steam Conditions 125
European Railways, Electric Locomotion on..... 595
Experimental Railway Work with High-Tension Rotary Currents.... 753
London Metropolitan, Electric Traction on the..... 747
Rotary Currents, Experimental Railway Work with High-Tension..... 753
Traction, Practical Notes on..... 743

INDEX to leading articles on Street and Electric Tramways in the Engineering Press.....159, 318, 479, 639, 798, 958.

EDITORIAL COMMENT

.....107, 257, 419, 583, 741, 899.

REVIEW OF THE ENGINEERING PRESS.

The British Press.....109, 261, 421, 585, 743, 901.
The Continental Press.....117, 269, 429, 593, 751, 909.
The American Press.....125, 277, 437, 599, 759, 917.

REVIEWS OF BOOKS

..... 320